REMARKS

The present amendment is in response to the Office Action dated July 2, 2003, where the Examiner has rejected claims 1-8, 10-14, 17-22, 23-31 and 33-35, and has objected to claims 9, 15, 16 and 32. By the present amendment, claims 1, 10, 17, 23 and 33 have been amended. Accordingly, claims 1-35 remain in the present application. Reconsideration and allowance of outstanding claims 1-8, 10-14, 17-22, 23-31 and 33-35 in view of the amendments and the following remarks are respectfully requested.

A. Rejection of Claim 1 under the Judicially Created Doctrine of Double Patenting

The Examiner has rejected claim 1 under the judicially created doctrine of double patenting as being unpatentable over claim 1 of U.S. Application Serial No. 09/586,433.

Along with the present amendment, Applicant has submitted a terminal disclaimer to overcome the Examiner's rejection under the judicially created doctrine of double patenting with respect to claim 1 of U.S. Application Serial No. 09/586,433. Applicant respectfully submits that the enclosed terminal disclaimer overcomes the Examiner's double patenting rejection.

B. Improper Incorporation by Reference

The Examiner has indicated that the incorporation by reference on page 1 of the present application is improper. Applicant has amended the paragraph beginning on page 1, line 6 to further specify the Serial Number and filing date of the U.S. Application

which is incorporated in its entirety by reference. Applicant respectfully submits that the incorporation by reference on page 1 of the present application now meets the requirements of MPEP §608.01(p).

C. Rejection of Claims 17-22 and 33-35 Under 35 USC §101

The Examiner has rejected claims 17-22 and 33-35 under 35 USC §101 as being directed to non-statutory subject matter. Applicant has amended independent claims 17 and 33 to specify a "computer program product embodied on a computer-readable medium, which when executed, causes a processing system to simulate a system design." Applicant respectfully submits that independent claim 17, and its corresponding dependent claims 18-22, and independent claim 33, and its corresponding dependent claims 34-35, now meet the requirements of 35 USC §101.

D. Rejection of Claims 1, 5, 6, 10, 17, 23, 24, 28, 29, 33 and 34 Under 35 USC §102

The Examiner has rejected claims 1, 5, 6, 10, 17, 23, 24, 28, 29, 33 and 34 under 35 USC §102(a) as being anticipated by Hollander (USPN 6,182,258) ("Hollander '258"). Applicant respectfully disagrees; however, in order to expedite the prosecution of the present application, applicant has amended independent claims 1, 10, 17, 23 and 33. For the reasons that follow, applicant respectfully submits that claims 1-35 are patentably distinguishable over Hollander '258.

As amended, claims 1, 10, 17, 23 and 33 specify, among other things, a computer implemented method and/or instructions for simulating a system design, including at least one function call comprising "a cycle-based function corresponding to a collection of communication events." As discussed in the present application, "the events that comprise frequently repeated communications may be condensed into a single function call. A collection of related function calls may be referred to as an interface." Page 22, lines 13-15 of the present application. With this arrangement, detailed saturated event driven simulation can be avoided, and the invention advantageously achieves cycle accurate simulations with significantly improved simulation speed.

In contrast, Hollander '258 fails to disclose or suggest such an approach. Rather, Hollander '258 is directed to an improved testbench apparatus and method. To clarify, Hollander '258 is not directed to a method for simulating a system, as specified by claim 1, 10, 17, 23 and 33. Instead, Hollander '258 is directed to a technique for generating system tools used to verify a device under test ("DUT"). See, for example, col. 4, lines 44-52 of Hollander '258. The DUT may be a module, chip, simulation and/or system, and Hollander '258 discloses a testbench which can be used and re-used to test the DUT. Specifically, Hollander '258 discloses a technique for generating test vectors used as input stimuli to, for example, a simulator. However, Hollander '258 is not directed to the system simulator itself, nor to a method for simulating a system, as specified by claims 1, 10, 17, 23 and 33. As such, Hollander '258 neither discloses nor remotely suggests the computer implemented method and/or instructions for simulating a system design, as

specified by claims 1, 10, 17, 23 and 33. In sum, Hollander '258 is simply directed to a tool for generating a testbench suitable for testing system simulations.

Moreover, as discussed above, claims 1, 10, 17, 23 and 33 have been amended to specify at least one "function calls comprising a cycle-based function corresponding to a collection of communication events." Such an approach is neither disclosed nor suggested by Hollander '258. For these reasons, applicant respectfully submits that the rejection of independent claims 1, 10, 17, 23 and 33, and their corresponding dependent claims 2-9, 11-16, 18-22, 24-32 and 34-35 has been traversed, and that, therefore, claims 1-35 should now be allowed.

E. Rejection of Claims 1, 10, 17, 23 and 33 Under 35 USC §103

The Examiner has further rejected claims 1, 10, 17, 23 and 33 under 35 USC §103(a) as being unpatentable over Bargh, et al. (USPN 6,195,627) ("Bargh, '627") in view of Roy, et al. (USPN 6,295,517) ("Roy '517"). Applicant respectfully disagrees; however, in order to expedite the prosecution of the present application, applicant has amended independent claims 1, 10, 17, 23 and 33, as discussed above. For the reasons that follow, applicant respectfully submits that claims 1-35 are patentably distinguishable over the cited references, considered singly or in combination.

As acknowledged by the Examiner, Bargh '627 fails to disclose or suggest "identifying components and generating cycle accurate information." Page 5 of the Detailed Action. The Examiner, however, cites Roy '517, and, specifically, Figures 5A, 5B, col. 3, lines 6-11, col. 6, lines 1-14, col. 8, lines 10-48, col. 12, lines 61-67 and col.

13, lines 1-13 of Roy '517, stating that the clustering technique of Roy '517 could be combined with Bargh '627 to achieve the present invention as defined by claims 1, 10, 17, 23 and 33. Applicant respectfully disagrees that the combined disclosures of Bargh '627 and Roy '517 would result in present invention as defined by claims 1, 10, 17, 23 and 33.

With specific reference to Roy '517, Roy '517 discloses a cluster-based simulation architecture and method employing event-triggered cycle-based simulation or oblivious-triggered cycle-based simulation. The disclosure of Roy '517 makes clear that the technique disclosed in Roy '517 "is addressed to RTL simulation." Col. 5, line 15 of Roy '517. That is, Roy '517 is a technique for simulation at the register transfer level ("RTL"), which is at a substantially lower level of abstraction than the behavioral level corresponding to the cycle-based simulation method specified by claims 1, 10, 17, 23 and 33. See, for example, Figure 1 of the present application. Thus, while the disclosure of Roy '517 employs the use of event-triggered cycle-based simulation or oblivious-triggered cycle-based simulation, such techniques are applicable for generating RTL simulations systems, not behavioral level simulation systems.

Moreover, Roy '517 also points out that "the circuit designer, however, may require that certain portions of the Circuit Description 101 be simulated at higher or lower levels of modeling abstraction. Such portions are separated out by Front-end/Network Creation 102 and converted into an alternative conventional circuit representation suitable for conventional simulation techniques." Col. 5, lines 15-21 of Roy '517. Thus, according to Roy '517, its teachings are not applicable to simulation systems at a "higher"

level of modeling abstraction, including the behavioral level. Instead conventional systems are employed for simulations at levels other than RTL.

Furthermore, as discussed above, claims 1, 10, 17, 23 and 33 have been amended to specify at least one function call comprising "a cycle-based function corresponding to a collection of communication events." Such an approach is neither disclosed nor suggested by Bargh '627 and Roy '517. For these reasons, applicant respectfully submits that the rejection of independent claims 1, 10, 17, 23 and 33 has been traversed, and that, therefore, independent claims 1, 10, 17, 23 and 33, and their corresponding dependent claims 2-9, 11-16, 18-22, 24-32 and 34-35 should now be allowed.

F. Rejection of Claims 2-4, 7, 8, 11-14, 18-20, 25-27, 30 and 31 Under 35 USC §103

The Examiner has further rejected dependent claims 2-4, 7, 8, 11-14, 18-20, 25-27, 30 and 31 under 35 USC §103(a) as being unpatentable over Hollander '258 in view of Malin, et al. (USPN 5,732,192) ("Malin '192"). As discussed above, independent claims 1, 10, 17 and 23 are patentably distinguishable over Hollander '258 and, as such, claims 2-4, 7 and 8 depending from independent claim 1, claims 11-14 depending from independent claim 10, claims 18-20 depending from independent claim 17, and claims 25-27, 30 and 31 depending from independent claim 23 are, a fortiori, also patentably distinguishable over Hollander '258. Accordingly, claims 4-10 and 24-26 are patentably distinguishable over Hollander '258 in view of Malin '192.

G. Conclusion

For all the foregoing reasons, an early Notice of Allowance directed to claims 1-35 remaining in the present application is respectfully requested.

Respectfully Submitted;
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